

Claims

1. In a whole stalk sugar cane loader including a tractor unit supported on ground wheels spaced apart for operating in adjacent furrows on opposite sides of a first cane row located centrally between the wheels, a platform structure mounted on the tractor, a loader boom structure including a swivel mast mounted to the platform structure for swiveling about a support post having a vertical axis located for intersecting a center point of a furrow extending between said first row and a second row located outside said ground wheels, a brace structure coupled to an upper end of said support post, said boom structure further including an inner boom section having a first end pivotally attached to said swivel mast and having a second end attached to a first end of an outer boom section, a grab assembly coupled to a second end of said outer boom section, a first extensible and retractable hydraulic actuator coupled between said swivel mast and said inner boom section for pivoting the inner boom section between lowered and raised positions, a second extensible and retractable hydraulic actuator coupled between said inner boom section and said outer boom section, and a push piler implement mounted to a forward end of said tractor unit and including a pair of transversely spaced tines defining a pocket between them for operating centrally within said furrow, the improvement comprising: said first end of said inner boom section being pivotally mounted to said swivel mast at a location on an opposite side of said vertical axis from said second end when said inner boom section is in said raised position.

2. The sugar cane loader, as defined in claim 1, wherein said inner boom section, as considered in its raised position, includes a middle portion which extends at least substantially parallel to said axis, and includes a lower end portion joined to said middle portion so as to form an approximate right-angle with said middle portion.

3. The sugar cane loader, as defined in claim 2, wherein said lower end portion is bifurcated and includes parts straddling said swivel mast.

4. In a whole stalk sugar cane loader including tractor unit supported on ground wheels spaced apart for operating in adjacent furrows on opposite sides of a first cane row located centrally between the wheels, a platform structure mounted on

the tractor, a loader boom structure including a swivel mast mounted to the platform structure for swiveling about a post supported at a location above said swivel mast and having a vertical axis located for intersecting a center point of a furrow extending between said first row and a second row located outside said ground wheels, said boom structure further including an inner boom section having a first end pivotally attached to said swivel mast and having a second end attached to a first end of an outer boom section, a grab assembly coupled to a second end of said outer boom section, a first extensible and retractable hydraulic actuator coupled between said swivel mast and said inner boom section for pivoting the inner boom section between lowered and raised positions, and a second extensible and retractable hydraulic actuator coupled between said inner boom section and said outer boom section, the improvement comprising: said inner boom section including a straight portion extending from said swivel mast in approximate parallel relationship to said axis when said inner boom section is in a fully raised position.

5. The sugar cane loader, as defined in claim 4, wherein said first hydraulic actuator is fully extended and oriented in approximate parallel relationship to said straight portion when said inner boom section is in said fully raised condition.

6. The sugar cane loader, as defined in claim 4, wherein said inner boom section includes a lower portion joined at an angle to a lower end of said straight portion and being pivotally coupled to said swivel mast at a location on an opposite side of said axis from said straight portion.

7. The sugar cane loader, as defined in claim 5, wherein said inner boom section includes a lower portion joined at an angle to a lower end of said straight portion and being pivotally coupled to said swivel mast at a location on an opposite side of said axis from said straight portion.

8. A loader boom structure adapted for being used with a sugar cane loader, comprising: a swivel mast support including a post supported only at its top and bottom and extending along a vertical axis; a swivel mast being mounted for pivoting about said post; an inner boom section having a first end mounted to said swivel mast at a location on an opposite side of said axis from a second end of said inner boom for pivoting vertically between fully lowered and fully raised positions;

and an extensible and retractable hydraulic actuator being coupled between said swivel mast and said inner boom section for selectively pivoting said inner boom section between said fully lowered and raised positions.

9. The loader boom structure, as defined in claim 8, wherein said inner boom section includes a straight portion which extends in approximate parallel relationship to said axis when said inner boom is in said raised position.

10. The loader, as defined in claim 9, wherein said straight portion of said inner boom section is a middle portion, which when said inner boom section is considered in said raised position, extends between lower and upper end portions which are angled in opposite directions from said middle portion.

11. The loader, as defined in claim 10, wherein said lower end portion is disposed at a right angle to said straight portion.

12. The loader, as defined in claim 10, wherein said upper end portion is disposed at an angle of at least approximately 25° from said straight portion.

13. The loader, as defined in claim 9, wherein said hydraulic actuator is substantially fully extended and is disposed substantially parallel to said straight portion when said inner boom section is in said fully raised position.

14. A loader boom structure adapted for being used with a sugar cane loader, comprising: a swivel mast support; a swivel mast mounted to said support for pivoting about a vertical axis; an inner boom section having a first end mounted to said swivel mast at a first location on an opposite side of said axis from a second end of said inner boom section for pivoting vertically between fully lowered and raised positions; an extensible and retractable, hydraulic boom lift actuator being coupled between a second location of said swivel mast and said inner boom section for selectively pivoting said inner boom section between said fully lowered and raised positions; and said first location being so located relative to said boom lift actuator that a first moment arm between a first line of action of said boom lift actuator when said inner boom section is in said fully lowered position is no greater than a second moment arm between a second line of action of said boom lift actuator when said inner boom section is in said fully raised position.

15. A loader boom structure adapted for being used with a sugar cane

loader, comprising: a swivel mast support; a swivel mast mounted to said support for pivoting about a vertical axis; an inner boom section having a first end mounted to said swivel mast at a first location on an opposite side of said axis from a second end of said inner boom section for pivoting vertically between fully lowered and raised positions; an extensible and retractable hydraulic boom lift actuator being coupled between a second location of said swivel mast and said inner boom section for selectively pivoting said inner boom section between said fully lowered and raised positions; and said first location being so located relative to said boom lift actuator, that as said boom lift cylinder is actuated between retracted and extended positions in moving said inner boom section between said lowered and raised positions, said boom lift actuator operates through a substantially constant moment arm.